

## A System For Customizing Personal Care Products.

### PRIORITY

This application claims priority to provisional application No. 60/227,807 filed August 25, 2000.

### BACKGROUND OF THE INVENTION

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Many personal care products such as body wash, facial cleansing gel, hair shampoo, hair conditioner, face lotion and other personal care products that are currently available are provided as prepared formulations. A drawback of such products is that the user cannot alter the formulation to accommodate their 10 particular skin and hair characteristics, personal preferences, or to provide specialized treatment. A further drawback is the uncertainty of the age and freshness of the prepared formulation which may have been prepared many months or years before the product is sold.

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Multiple-part product kits that contain separate components of e.g. a hair shampoo, hair conditioner, cosmetics, or other personal care products are available from many professional salons and some retail personal care outlets. However, the user is still unable to customize the individual formulations in light of the consumer's unique personal care preferences and requirements.

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Therefore, one aspect of the invention is to provide a system that enables a user to formulate a variety of personal care product compositions to best suit the needs of the consumer. Another aspect of the invention is to provide a system that is easy to use such that the user may be a layperson who is able to formulate 25 a customized personal care product. Another aspect of the invention is to provide a plurality of performance agents in a common vehicle, which are compatible with the personal care product base, and form a stable personal care product, which is freshly blended.

## SUMMARY OF THE INVENTION

A system is provided for preparing a customized, personal care product for a consumer at a location remote from a second location in which a personal care product base composition is prepared, preferably at the point of retail sale. The system comprises providing a selection of personal care base compositions and a plurality of variants from two or more classes of performance agents whereby the variants of any one class have at least two ingredients in common with each other, and which are compatible with each other when all the components are mixed together. A plurality as used herein is defined as a number greater than one. Variants as used herein are defined as distinct members of a single class of performance agent which may be selected from such classes as botanical extracts, emollients, vegetable oils, active agents for treating or preventing skin disorders, vitamins, and the like. Variants may differ from each other with respect to either the identity (e.g. vitamin E acetate and vitamin A palmitate), or in the concentration of the aforementioned components.

Preferably the second class of performance agent has at least three ingredients in common. The consumer is allowed to select, in any sequence, one personal care base composition and at least two variants from separate classes of performance agents, such as a fragrance and a benefit agent. The user doses, in any sequence, the consumer selected personal care base composition, performance agents, and, if necessary, sufficient vehicle into a container, mixes the contents until uniform, and labels the container. The vehicle is flowable and may be a liquid, paste, flowable powder, or extrudable solid. Preferably the vehicle is a liquid with a viscosity ranging from water like to 100,000 cps at 25 C.

A sufficient quantity of a blank composition having at least two ingredients in common with at least one performance agent present in the product, and preferably having substantially the same vehicle composition as that of the performance agent may be dosed in the container if an insufficient number of

performance agents are selected by the consumer. This allows for maintaining each of the following product characteristics: optimum concentration of base product ingredients, stability, viscosity, texture, clarity, and skin feel; while providing many choices for the consumer in customizing the product.

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Inventive personal care product base compositions include cleansing and conditioning product bases useful for formulating body wash, body lotion, body mist spray, hydroalcoholic toner, facial cleansing gel, hand cleanser, hair shampoo, hair conditioner, a face lotion, a deodorant, a bar soap, a bath foam, 10 bath salts, and the like.

#### Detailed Description of the Invention

In one aspect of the invention is a system for providing a customized, personal care product to a consumer at a location remote from a second location in which a personal care product base composition is prepared is provided. The system comprises the following:

- (a) providing a selection from a plurality of said personal care base compositions in separate containers;
- (b) providing a selection from a plurality of variants from a first class of performance agents in separate containers, each of said variants being delivered in a first vehicle, said first vehicle for each of said variants having at least two ingredients in common with each other, said first vehicle being compatible with a mixture of said personal care base composition and a second class of performance agents different from the first class;
- (c) providing a selection from a plurality of variants of said second class of a performance agents in separate containers, each of said

variants being delivered in a second vehicle, said second vehicle for each of said variants having at least two ingredients in common with each other;

- (d) permitting the consumer to select, in any sequence, said at least one personal care base composition; at least one variant from said first class of performance agents; and at least one variant from said second class of performance agents;
- (e) dosing, in a predetermined sequence, the consumer selected personal care base composition and performance agents into a container to form a personal care product; and
- (f) mixing said personal care product until the product is uniform.

The predetermined sequence of dosing the personal care base and performance agents will normally be a random one i.e. where any sequence may be used.

- 15 However, certain products will have greater stability if dosed in a specific sequence such as for body toner where the product base should be dosed first, for maximum stability.

- 20 In another aspect of the inventive method, a sufficient quantity of a blank composition is dosed into the product container, in substitution for at least one performance agent, whereby the final concentration of base product ingredients in the personal care composition is adjusted to be substantially equal to that of a final product where no substitution of said performance agents was made.

- 25 Preferably the blank composition has at least two ingredients in common with any one of the performance agents contained in the final product.

Preferably the personal care product is provided to the consumer at the point of retail sale.

- 30 The personal care product base compositions useful in the invention typically contain one or more of the following: a solvent such as water, monohydric and/or

polyhydric alcohols, polyethylene glycol, and the like; soaps, surfactants such as anionic, cationic, amphoteric, zwitterionic surfactants, and the like; conditioning agents such as cationic polymers, silicone polymers and the like; thickening agents such as acrylates, polysaccharide polymers, and the like; lathering aids such as alkanolamides and the like; emollients such as vegetable oils, fatty esters, and the like; pH adjusters, and preservatives. Further examples of useful solvents, surfactants, conditioning agents, thickening agents, lathering aids, emollients, pH adjusters, and preservatives are listed in the CTFA Cosmetic Ingredient Handbook, second edition, 1990; which is here incorporated by reference.

Other examples of useful anionic, amphoteric, and zwitterionic surfactants, and foam boosters of the personal care product base compositions useful in the invention are described in U.S. Patent No. 5,221,530 issued to Janchitraponvej, et. al. on June 22, 1993; incorporated herein by reference. Examples of useful hair shampoo, conditioner, and styling base compositions useful in the invention are described in U.S. Patent No. 5,993,792 issued to Rath, et. al. on November 30, 1999 incorporated herein by reference. Preferably the personal care product base has a viscosity in the range of about 0.9 to 100,000 cps at 25 C, more preferably in the range of about 0.9 to 30,000 cps at 25 C.

The viscosity of the product base can be varied, from a pourable liquid, to a thick paste or extrudable material, depending on its composition and the amount of thickener added to the base. The product base may also comprise a flowable powder.

In another aspect of the invention, a customized label is applied to the product container which identifies the product and only the components of the base formula and dosed performance agents actually contained in the container. Such a label may be generated by any suitable means, but is preferably generated by a computer interfaced with a printer which allows for the user to input the

consumer's custom product selections and accesses a database of ingredients contained in the available product bases and performance agent compositions to produce a customized label. The same computer printer combination may also be used to insert a code on the label, e.g. a machine readable bar code or the like, capable of tracking the identity of both the product and the consumer for later reference. In this way, the consumer can easily reorder the custom product from the same location the product was purchased or from a remote location. The consumer may also return to the store or kiosk and allow the previous label to be scanned thus facilitating the purchase of additional product.

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One class of performance agents may typically be fragrances, and may contain a solvent, such as water, a monohydric alcohol, a polyhydric alcohol or a blend thereof. Among suitable monohydric alcohols are ethanol, isopropanol, butanol, hexanol and combinations thereof, and the like. Most preferred is ethanol.

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Suitable polyhydric alcohols include glycerin (known also as glycerol), propylene glycol, dipropylene glycol, polyethylene glycol, sorbitol, hydroxypropyl sorbitol, hexylene glycol, 1,3-butylene glycol, isopropylene glycol and mixtures thereof, and the like. Most preferred are propylene glycol and polyethylene glycol.

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This class of performance agent also contains at least one preservative, preferably one or more of a biocide, a chelate, an UV inhibitor and an antioxidant or any combination thereof. More preferably the fragrance agent contains DMDM Hydantoin, Iodopropynyl Butylcarbamate, and EDTA, and an UV inhibitor.

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Another aspect of the invention is the availability of fragrance and other performance agent intensity levels that are selectable by the consumer. Further examples of useful preservatives, chelates, antioxidants, and UV inhibitors are listed in the CTFA Cosmetic Ingredient Handbook, second edition, 1990.

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Other classes of performance agents of the invention may include a colorant, and a benefit agent. Inventive benefit agents include emollients, botanical extracts, vitamins, other active ingredients to prevent or treat undesired skin and hair

conditions, and the like. Additionally, the inventive benefit agents contain a solvent such as water, a monohydric alcohol, or a polyhydric alcohol, e.g. propylene glycol or the like; a solubilizing agent, and at least one preservative. Preferably the solubilizing agent is selected from at least one of a polyethylene glycol ether of a fatty alcohol, a polyethylene glycol ether of hydrogenated castor oil, a polyethylene glycol derivative of a sorbitan ester, a polysorbate, a glycerol ester, a polyethylene glycol derivative of a glycerol ester, an alkyl phosphate, and an alkyl sulfate, and the like. Further examples of useful benefit and solubilizing agents are listed in the CTFA Cosmetic Ingredient Handbook, second edition, 5 1990. Preferably preservatives consist of one or more of a biocide, a chelate, an UV inhibitor, and an antioxidant or any combination thereof. More preferably, the performance agent preservatives are selected from DMDM Hydantoin, Iodopropynyl Butylcarbamate, polyaminocarboxylic acid chelates or their salts such as EDTA, and the like. The inventive blank performance agent, or vehicle, 10 15 contains substantially no fragrance or benefit agent, and has at least two ingredients in common with at least one of the other performance agents in its class, including preferably a solvent, and one or more solubilizing agents. Preferably the blank benefit agent has at least three ingredients in common with the other benefit agents including preferably a solvent, one or more solubilizing 20 agents, and a preservative.

In another aspect, the inventive system produces custom products of convenient volume to facilitate consumer use. Preferably, the container for the final product has a volume under about 1 liter. Preferably the container has a neck to facilitate 25 pouring and is threaded or flanged to accept a cap, pump, or the like. The container may be opaque, translucent, or transparent; in whole or in part, and made of any suitable material which is not attacked by the contents of the product contained therein. Suitable materials include glass, plastic, barrier-coated paper, metal, or composites or laminates thereof. Preferably the product 30 container is made of polyethylene, polypropylene, or PET; and is transparent or translucent. Prior to mixing the contents of the container, preferably either a cap

without an integral orifice is used to cap the container or a plug is inserted in the container's neck after the container has been filled to a level below the neck using a plug that's sized to occupy at least 50% of the neck volume. This is done in part to improve mixing efficiency when the container's contents are blended by e.g. an external mixing device, such as a Red Devil model 5300 twin axis mixer (Brooklyn Park, MN) or the like. Preferably the container is situated in the mixer in a position at an angle of greater than 10 degrees, more preferably greater than 30 degrees, from its major axis vertical orientation, and most preferably in a position substantially inverted from its filling position.

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Except in the operating and comparative examples, or where otherwise explicitly indicated, all numbers in this description indicating amounts of material ought to be understood as modified by the word "about".

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The following examples will more fully illustrate the embodiments of this invention. All parts, percentages and proportions referred to herein and in the appended claims are by weight unless otherwise illustrated.

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#### Example 1

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The custom formulation of separate embodiments of an inventive body lotion, hair conditioner, facial cleanser, body mist, toner, body wash, instant hand cleanser, hair shampoo and face lotion are illustrated in Table 1A. Specifically illustrated is the choice of a single base formula corresponding to the product type above, the choice of one of three different embodiments of inventive fragrance concentrates, or alternatively, of a single, inventive fragrance concentrate, to be dispensed either in one, two or three portions in order to provide moderate, strong, and stronger fragrance intensity levels, and the choice of one or more of four different embodiments of inventive benefit agents. Tables 1B and 1C illustrate embodiments of the inventive fragrance vehicle or blank and the inventive benefit vehicle or blank respectively.

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A1*

Example 2

5   Table 2 shows in further detail the composition of the embodiment of the custom  
body lotion product base depicted in table 1. Table 2a shows the composition of  
a body lotion base concentrate, tables 2b and 2c show the composition of  
embodiments of an inventive fragrance and benefit agent concentrate  
respectively that the consumer may select, and table 2d shows how the  
10   consumer selected agents are blended together to make the custom body lotion  
product. If the consumer does not pick sufficient choices of a fragrance, benefit  
agent, or other performance agent; sufficient inventive vehicle or blank  
fragrance/benefit agents, as depicted in tables 2e and 2f respectively, are  
substituted.

15   Example 3

20   Table 3a shows in further detail the composition of an embodiment of the custom  
hair conditioner product base depicted in table 1. Inventive fragrance and benefit  
agents are depicted in tables 2b and 2c above. Table 3b shows how the  
consumer selected agents are blended together to make the custom hair  
conditioner product. As for the body lotion in Example 2, if the consumer does  
not pick sufficient choices for a fragrance or benefit agent for the hair conditioner,  
sufficient inventive vehicle or blank fragrance/benefit agents as depicted in tables  
25   2e and 2f respectively are substituted.

Table 1A

Product Form	Base Formula	Fragrance Allotment #1	Fragrance Allotment #2	Fragrance Allotment #3	Benefit #1	Benefit #2	Benefit #3	Benefit #4
		Solvent (Propylene Glycol) Preservatives (Glydant Plus & Edta) UV-Inhibitor (Benzophenone-2)	Solvent (Propylene Glycol) Preservatives (Glydant Plus & Edta) UV-Inhibitor (Benzophenone-2)	Solvent (Propylene Glycol) Preservatives (Glydant Plus & Edta) UV-Inhibitor (Benzophenone-2)	Solvent (Water) Solubilizing Agent (PEG-40) Hydrogenated Castor Oil & Trideceth-9) Preservatives (Glydant Plus & Edta)	Solvent (Water) Solubilizing Agent (PEG-40) Hydrogenated Castor Oil & Trideceth-9) Preservatives (Glydant Plus & Edta)	Solvent (Water) Solubilizing Agent (PEG-40) Hydrogenated Castor Oil & Trideceth-9) Preservatives (Glydant Plus & Edta)	Solvent (Water) Solubilizing Agent (PEG-40) Hydrogenated Castor Oil & Trideceth-9) Preservatives (Glydant Plus & Edta)
		Color & Fragrance	Color & Fragrance	Color & Fragrance	Performance Agent (Benefit)	Performance Agent (Benefit)	Performance Agent (Benefit)	Performance Agent (Benefit)
Body Lotion	90.435 %	.87%	.87 %	.87 %	1.74%	1.74%	1.74%	1.74%
Hair Conditioner	91.478 %	.522%	— .522%	.522%	1.74%	1.74%	1.74%	1.74%
Facial Cleanser	92.263 %	.26%	.26%	.26%	1.74%	1.74%	1.74%	1.74%
Body Mist	86%	2%	2%	2%	2%	2%	2%	2%
Toner	91.1%	.3%	.3%	.3%	2%	2%	2%	2%
Body Wash	89.5%	1.33%	1.33%	1.33%	1.625%	1.625%	1.625%	1.625%
Instant Hand Cleanser	83.49 %	.56%	.56%	.56%	3.71%	3.71%	3.71%	3.71%
Hair Shampoo	90.8%	.84%	.84%	.84%	1.675%	1.675%	1.675%	1.675%
Face Lotion	93.03 %	.084%	.084%	.084%	1.68%	1.68%	1.68%	1.68%

5 Table 1B

Table 1C

Fragrance Blank	Benefit Blank
<u>Solvents</u> (Dipropylene Glycol & Propylene Glycol)	Solvent (Water)
<u>Preservatives</u> (Glydant Plus & Tetrasodium Edta)	Solubilizing Agent (PEG-40 hydrogenated Castor Oil and Trideceth-9)
<u>UV-Inhibitor</u> (Benzophenone-2)	Preservatives (Glydant Plus and Disodium EDTA)
NO COLOR	

**Tables 2 a – f****Table 2a****Base Hand Lotion formula**

<b>COMPONENT</b>	<b>% wt/wt</b>
WATER	75 - 80%
Na2 EDTA	.04 - .08
magnesium aluminum silicate	.02 - .04
tio2	.08 - .12
carbopol	8 - 12
Triethanolamine	1 - 1.5
STEARIC ACID	2 - 3
Cetyl Alcohol	2 - 3
Mineral Oil	2 - 3
PEG-100 Stearate	.2 - 1.0
steramide	.2 - 1.0
Glyceryl Stearate	.2 - 1.0
silicone	.2 - 1.0
C12-15 Alkyl Ethylhexanoate	.2 - 1.0
Glydant Plus	.1 - .5

**Table 2d****Finished Hand Lotion Formula**

<b>Ingredient</b>	<b>% wt/wt</b>
Base Lotion Formula	90.4 %
Fragrance Formula	2.6 %
Benefits Formulas	7.0 %

**Table 2b**

Custom fragrance formula

Ingredient	Function	% wt/wt
Fragrance	Performance Agent	40 – 60 %
Propylene Glycol	Solvent	40 – 60 %
Glydant Plus liquid	Preservative	0.1 – 0.5 %
Tetrasodium EDTA	Preservative	0.01 – 0.2%
Benzophenone-2	UV-Inhibitor	0.1 – 0.5 %
OPTIONAL COLORS	Performance Agent	0.01 – 3.0 %

**Table 2f**

Custom fragrance blank formula

Ingredient	Function	% wt/wt
Dipropylene Glycol	Solvent	40 – 60 %
Propylene Glycol	Solvent	40 – 60 %
Glydant Plus liquid	Preservative	0.1 – 0.5 %
Tetrasodium EDTA	Preservative	0.01 – 0.2%
Benzophenone-2	UV-Inhibitor	0.1 – 0.5 %

**Table 2c**

Custom benefit formula

Ingredient	Function	% wt/wt
DI Water	Solvent	93 – 97
Benefit Component	Performance Agent	0.3 – 1.0 %
Solubilizer	Solubilizing Agent	2 – 6 %
Glydant Plus liquid	Preservative	0.1 – 0.5 %
Disodium EDTA	Preservative	0.01 – 0.1 %

**Table 2e**  
**Custom benefit**  
**blank formula**

Ingredient	Function	% wt/wt
DI Water	Solvent	93 – 97
Solubilizer	Solubilizing Agent	2 – 6 %
Glydant Plus liquid	Preservative	0.1 – 0.5 %
Disodium EDTA	Preservative	0.01 – 0.1 %

**Tables 3a and b**

**Table 3a**  
**Base Hair Conditioner formulation**

Ingredients	% wt/wt
DI Water	80 – 90
Citric Acid	0.1 – 0.4
Hydroxyethylcellulose	0.1 – 0.4
Stearamidopropyl Dimethylamine	0.2 – 1.0
Stearyl Octyldimonium Methosulfate	1.0 – 2.0
BES & Stearyl Alcohol	0.2 – 1.0
Cetyl Alcohol	1.5 – 4.0
Stearyl Alcohol	1.0 – 2.0
Disodium EDTA	0.1 – 0.4
Potassium Hydroxide	0.01 – 0.1
Glydant Plus Liquid	0.1 – 0.4
dimethyl siloxane derivative & TEA-Dodecylbenzenesulfonate	0.7 – 2.0
Siloxane derivative	0.7 – 2.0

**Table 3b**  
**Finished Hair**  
**Conditioner Product**

Ingredient	% wt/wt
Base Conditioner Formula	91.5 %
Fragrance Formula	1.5 %
Benefits Formulas	7.0 %

The foregoing description and examples illustrate selected embodiments of the present invention. In light thereof variations and modifications will be suggested to one skilled in the art, all of which are within the scope and spirit of this invention.